

6.102PCT sequence listing
SEQUENCE LISTING

<110> The Volcani Center; The State of Israel-Ministry of Agriculture,
Agricultural Research Organization

Levin, Ilan

Lieberman, Michal

Amir Segev, Orit

Gilboa, Nehama

Lalazar, Avraham

<120> Isolated Nucleotide Sequences Responsible for the Tomato High Pigment-1
Mutant Phenotypes (hp-1 and hp-1w) and Uses thereof

<130> 6.102PCT

<150> US 60/512,774

<151> 2003-10-21

<160> 18

<170> PatentIn version 3.1

<210> 1

<211> 3273

<212> DNA

<213> Lycopersicon esculentum

<400>

```

1
atgagtgtat ggaactacgt ggttacggct cacaaaccaa caaatgttac acattcctgt      60
gttggaatt tcaccggtcc tcaagagctc aatcttatca ttgcgaaatg tactcgaatc      120
gagattcatt tacttactcc ccaagggtta cagcctatgt tagatgtgcc aatatatggg      180
aggatcgcca cacttgagct ttttcgtcct cacggtgaaa cacaagatct tctcttcac      240
gcaacagagc gatataaatt ctgtgtcctt caatgggata ctgaggcatc tgaagttatc      300
acaagagcaa tgggagatgt gtcagaccga ataggccgct ccacagataa tggtcagatt      360

```

6.102PCT sequence listing

ggtataattg atccagattg cagattgatac gggctacatc tttatgatgg actattttaag	420
gttattccat ttgataacaa aggccaactg aaggaagctt ttaacatcag gctcgaggag	480
cttcaagttt tagatattaa attcttgatg ggttgcccaa agcctacaat tgttggttcta	540
tatcaggata acaaggatgc ccggcatgtc aaaacatatg aggtgtcctt gaaagacaaa	600
gattttattg aagggccatg ggctcaaaat aatcttgata atggagcttc tttgctaata	660
ccagtacctc caccactgtg tgggtgattg attattggag aagaaaccat cgtttattgc	720
agcgcttcag cttttaaggc tatcccaatt agaccttcta tcacaagagc atatgggcgg	780
gttgatgctg atgggtctcg atatttgctt ggggatcata atgggcttct tcacctactt	840
gtaatcactc atgagaagga gaaagttacc ggactcaaaa ttgagctact gggggaaact	900
tctattgcat caaccatata ataccatagac tatgcttttg tcttcattgg ctcaagctac	960
ggagattcac agcttgtaaa gctcaatctc cagcctgaca ccaaagggtc ttatgtggaa	1020
gttctagaga gatattgtcaa ttaggacct attgtggact tctgtgtgtg tgatctggaa	1080
aggcaaggct aaggctcaggt tgtaacttgc tctggagcct ataaggatgg atcacttcgt	1140
attgttcgaa atggaattgg cataaatgaa caggcgtctg tggaactaca agggatcaaa	1200
ggaatgtggt ctcttagatc tgctactgat gatccatatg acacattctt ggttgtagc	1260
ttcattagtg agacacgcgt tttggctatg aaccttgagg atgagctgga agaaactgag	1320
atagaaggct tcaattctca agtccagacc ttgttttgtc atgatgctgt atacaaccag	1380
cttggttcagg ttacttcaaa ttctgttaga ttggctcagtt ctacctctag agatctgaaa	1440
aacgagtggg ttgccccagt cggctactcg gtcaatgttg caactgctaa tgccactcag	1500
gtactattgg ctactggggg tggccatctg gtatacctag aaattggtga tgggggtgtg	1560
aatgaagtaa aatatgccaa gttggattat gatattctcg gcctggacat aaatccaatt	1620
ggtgaaaatc cgaactacag taacattgca gcagttggaa tgtggacaga cataagtgtc	1680
aggatatatt cacttcctga cttgaatctc attacaaagg aacagctagg aggggagata	1740
attcctcgtt ctgttctgat gtgttccttc gaaggatat cttatctact atgtgctttg	1800
ggagatggcc atctcttgaa ttttgtattg agcatgagta ctggtgagct gacagatagg	1860
aaaaaagttt ctcttgggac acagcccata acacttcgta cattctcatc taaagatact	1920
acacatgtct ttgctgcctc cgataggcca acagttatct acagcagtaa caagaagctg	1980
ctttatagca atgtaaactt aaagaagtt agtcatatgt gccattcaa tgttgcagct	2040
tttccagaca gccttgcaat cgctaaagaa ggtgagttaa caattggcac tattgatgaa	2100
attcaaaagc ttcacattcg ttcaataccc cttggggagc atgcacgtcg catcagccat	2160
caagagcaga cccggacatt tgctctatgc agtggtgaagt atactcagtc aaatgcagat	2220
gatcctgaaa tgcattttgt ccgcctgttg gatgatcaga catttgagtt catatcaaca	2280
tatccccctg accaatttga atatggctgt tccatactaa gctgctcctt ttctgatgat	2340
agtaatgtgt attattgcat tggaactgca tatgtgatgc cagaggaaaa tgaacctact	2400

6.102PCT sequence listing

aagggccgaa ttttagtttt tatagttgaa gatggaaagc tccagctaata tgctgagaag 2460
gaaactaagg gagctgtcta ctctctaaat gccttcaatg ggaaactgct tgctgcaatc 2520
aatcagaaga ttcaattgta caagtgggct tcgctgagg atggtggcag ccgagaattg 2580
cagacagaat gtggacacca tgggtcatata ttagctcttt atgttcaaac acgtggggat 2640
ttcattgttg ttggtgattt gatgaaatcc atttctctgc tgattttcaa gcatgaagag 2700
ggtgctatag aggagcgagc cagagactat aatgcaaatt ggatgtcagc tgttgagatt 2760
ctcgaatgat acatttatct tgggtgctgag aataacttca accttttcac ggtcaggaaa 2820
aatagtgaag gtgctacaga tgaggagcgc agccgtcttg aagtgggttg tgaataccac 2880
cttggcgaat ttgttaatag gtttagacat gggtcacttg tcatgcgact accagattca 2940
gatgttgggc agataccccc tgatcatatct ggcacagtga atggtgttat aggggtgatt 3000
gcatcactac ctcatgatca atatttatct ttggagaagc tgcagacaaa cttacggaaa 3060
gtgataaagg gtgtgggagg tctgagccat gagcagtgga ggtcgtttta caatgagaag 3120
aaaacagtag atgctaaaaa ctttcttgat ggagatttga ttgaatcatt cctagatctt 3180
agcaggaata ggatggaaga gatttcaaag gctatgtcag ttccagttga ggaactaatg 3240
aagagagtgg aagagttgac aaggttgcac tag 3273

<210> 2

<211> 3273

<212> DNA

<213> Lycopersicon esculentum

<400>

2

atgagtgtat ggaactacgt gggttacggct cacaaccaa caaatgttac acattcctgt 60
gttggcaatt tcaccgggtcc tcaagagctc aatcttatca ttgcgaaatg tactcgaatc 120
gagattcatt tacttactcc ccaagggttta cagcctatgt tagatgtgcc aatatatggg 180
aggatcgca cacttgagct ttttcgtcct cacggtgaaa cacaagatct tctcttcac 240
gcaacagagc gatataaatt ctgtgtcctt caatgggata ctgaggcatc tgaagttatc 300
acaagagcaa tgggagatgt gtcagaccga ataggccgct ccacagataa tggtcagatt 360
ggtataattg atccagattg cagattgatc gggctacatc tttatgatgg actatttaag 420
gttattccat ttgataaaa aggccaactg aaggaagctt ttaacatcag gctcgaggag 480
cttcaagttt tagatattaa attcttgat gggtgccccaa agcctacaat tgttgttcta 540
tatcaggata acaaggatgc ccggcatgtc aaaacatatg aggtgtcctt gaaagacaaa 600
gattttattg aagggccatg ggctcaaaat aatcttgata atggagcttc tttgctaata 660
ccagtacctc caccactgtg tgggtgattg attattggag aagaaacat cgtttattgc 720
agcgcttcag cttttaaggc tatcccaatt agaccttcta tcacaagagc atatgggcgg 780

6.102PCT sequence listing

gttgatgctg atggttctcg atatttgctt ggggatcata atgggcttct tcacctactt	840
gtaatcactc atgagaagga gaaagttacc ggactcaaaa ttgagctact gggggaaact	900
tctattgcat caaccatata atacctagac aatgcttttg tcttcattgg ctcaagctac	960
ggagattcac agcttgtaaa gctcaatctc cagcctgaca ccaaagggtt ttatgtggaa	1020
gttctagaga gatatgtcaa tttaggacct attgtggact tctgtgttgt tgatctggaa	1080
aggcaagggtc aagggtcaggt tgtaacttgc tctggagcct ataaggatgg atcacttcgt	1140
attgttcgaa atggaattgg cataaatgaa caggcgtctg tggaactaca agggatcaaa	1200
ggaatgtggt ctcttagatc tgctactgat gatccatatg acacattctt ggttgtagc	1260
ttcatttagtg agacacgcgt tttggctatg aaccttgagg atgagctgga agaaactgag	1320
atagaaggct tcaattctca agtccagacc ttgtttgtc atgatgctgt atacaaccag	1380
cttggtcagg ttacttcaaa ttctgttaga ttggtcagtt ctacctctag agatctgaaa	1440
aacgagtggg ttgccccagt cggctactcg gtcaatgttg caactgctaa tgccactcag	1500
gtactatttg ctactggggg tggccatctg gtatacctag aaattgggtga tggggtgttg	1560
aatgaagtaa aatatgccaa gttggattat gatatctcgt gcctggacat aaatccaatt	1620
ggtgaaaatc cgaactacag taacattgca gcagttggaa tgtggacaga cataagtgtc	1680
aggatatatt cacttcctga cttgaatctc attacaaagg aacagctagg aggggagata	1740
attcctcgtt ctgttctgat gtgttccttc gaaggatat cttatctact atgtgctttg	1800
ggagatggcc atctcttgaa ttttgattg agcatgagta ctggtgagct gacagatagg	1860
aaaaaagttt ctcttgggac acagcccata acacttcgta cattctcatc taaagatact	1920
acacatgtct ttgctgcctc cgataggcca acagttatct acagcagtaa caagaagctg	1980
ctttatagca atgtaaactt aaaagaagtt agtcatatgt gccattcaa tgttgcagct	2040
ttccagaca gccttgcaat cgctaaagaa ggtgagttaa caattggcac tattgatgaa	2100
attcaaaagc ttcacattcg ttcaataccc cttggggagc atgcacgtcg catcagccat	2160
caagagcaga cccggacatt tgctctatgc agtgatgaagt atactcagtc aaatgcagat	2220
gatcctgaaa tgcattttgt ccgcctgttg gatgatcaga catttgagtt catatcaaca	2280
tatccccctg accaatttga atatggctgt tccatactaa gctgctcctt ttctgatgat	2340
agtaatgtgt attattgcat tggaactgca tatgtgatgc cagaggaaaa taaacctact	2400
aagggccgaa ttttagtttt tatagttgaa gatggaaagc tccagctaatt tgctgagaag	2460
gaaactaagg gagctgtcta ctctctaaat gccttcaatg ggaaactgct tgctgcaatc	2520
aatcagaaga ttcaattgta caagtgggct tcgcgtgagg atgggtggcag ccgagaattg	2580
cagacagaat gtggacacca tgggtcatata ttagctcttt atgttcaaac acgtggggat	2640
ttcattgttg ttggtgattt gatgaaatcc atttctctgc tgattttcaa gcatgaagag	2700
ggtgctatag aggagcgagc cagagactat aatgcaaatt ggatgtcagc tgttgagatt	2760
ctcgatgatg acatttatct tgggtgctgag aataacttca accttttcac ggtcaggaaa	2820

6.102PCT sequence listing

```

aatagtgaag gtgctacaga tgaggagcgc agccgtcttg aagtgggttg tgaataccac 2880
cttggcgaat ttgttaatag gtttagacat ggttcacttg tcatgcgact accagattca 2940
gatgttgggc agatacccac tgtcatatTTT ggcacagtga atggtgttat aggggtgatt 3000
gcatcactac ctcatgatca atatttattt ttggagaagc tgcagacaaa cttacggaaa 3060
gtgataaagg gtgtgggagg tctgagccat gagcagtgga ggTCgtttta caatgagaag 3120
aaaacagtag atgctaaaaa ctttcttgat ggagatttga ttgaatcatt cctagatctt 3180
agcaggaata ggatggaaga gatttcaaag gctatgtcag ttccagttga ggaactaatg 3240
aagagagtgg aagagttgac aaggttgcat tag 3273

```

<210> 3

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 3

acgacctatc gtggacttct gt

22

<210> 4

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 4

ctggacttga gaattgaagc ct

22

<210> 5

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

6.102PCT sequence listing

<400> 5
gagcctataa ggatggatca c 21

<210> 6
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic primer

<400> 6
cagcagttgg aatgtggaca g 21

<210> 7
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic primer

<400> 7
gcaatcgcta aagaaggatga gt 22

<210> 8
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic primer

<400> 8
gcattatagt ctctggctcg ct 22

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

6.102PCT sequence listing

<220>

<223> Synthetic primer

<400> 9

ggacatttgc tctatgcagt

20

<210> 10

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 10

aggcatttag agagtagaca gc

22

<210> 11

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 11

tttgagaag ctgcagacaa

20

<210> 12

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 12

cacaacctca cagaagaaga ag

22

<210> 13

<211> 22

<212> DNA

6.102PCT sequence listing

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 13
ccactctctt cattagttcc tc

22

<210> 14

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 14
gtaatacgac tcactatagg gc

22

<210> 15

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 15
atagcgggaa gagggaagat ac

22

<210> 16

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 16
tgttttccag agttaccgga ct

22

<210> 17

6.102PCT sequence listing

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 17

tagcttgagc caatgaagaç aa

22

<210> 18

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 18

atgaagacaa aagcat

16